

**BONDABLE ORTHODONTIC APPLIANCE
WITH A POLYMER RESIN BONDING BASE**

Claims

The invention is hereby claimed as follows:

1. An orthodontic appliance including an appliance body of metal, ceramic, or plastic, having a buccal/labial archwire receiving side and a lingual side, and a heat or light-cured polymer resin bonding base molded onto the lingual side of the body such that at least part of the body is embedded in the base, said base having at least one opening extending therethrough for receiving an arm of an auxiliary appliance or a secondary archwire for applying a predetermined force to a tooth on which the appliance may be mounted.

2. The orthodontic appliance of Claim 1, wherein the appliance is a bracket or a tube.

3. The orthodontic appliance of Claim 2, wherein the opening extends along the vertical axis of the appliance.

4. The orthodontic appliance of Claim 2, wherein the opening extends along the horizontal axis of the appliance.

5. The orthodontic appliance of Claim 2, wherein the opening extends along a diagonal axis of the appliance.

6. The orthodontic appliance of Claim 1, wherein the opening is formed by at least part of the lingual side of the appliance and a molded groove in the base.

7. The orthodontic appliance of Claim 1, wherein the polymer resin is acrylic, epoxy or epoxy/acrylic.

8. The orthodontic appliance of Claim 1, wherein the appliance is a bracket or tube.

9. A method of making an orthodontic appliance including a body of metal, ceramic or plastic having a buccal/labial archwire receiving side and a lingual side, and a polymer resin bonding base molded onto the lingual side of the body such that at least part of the body is embedded in the base, wherein the base includes at least one opening extending therethrough for receiving an arm of an auxiliary appliance or a secondary archwire, said method comprising the steps of:

making an orthodontic appliance body of metal, ceramic or plastic, and molding a light or heat curable polymer resin bonding base onto said lingual side of said body with at least one opening extending therethrough, thereby defining a one-piece orthodontic appliance having a bonding base and an opening through the base for receiving an arm of an auxiliary appliance or a secondary archwire for applying a predetermined force to a tooth on which the appliance is mounted.

10. The method of Claim 9, wherein the opening extends substantially vertically.

11. The method of Claim 9, wherein the opening extends substantially horizontally.

12. The method of Claim 9, wherein the opening extends substantially diagonally.

13. The method of Claim 9, wherein the polymer resin base is acrylic, epoxy, or epoxy/acrylic.

14. The method of Claim 9, wherein the appliance is a bracket or a tube.

15. An orthodontic appliance including a metal appliance body having a buccal/labial archwire receiving side and a lingual side, and an optically clear heat or light-curable polymer resin bonding base molded onto the lingual side of the body such that at least a part of the body is embedded in the base.

16. The orthodontic appliance of Claim 15, wherein the polymer resin base is acrylic, epoxy or epoxy/acrylic.

17. The orthodontic appliance of Claim 15, wherein the appliance is a bracket or a tube.

18. An orthodontic appliance including an appliance body of metal, ceramic, or plastic, having a buccal/labial archwire receiving side and a lingual side, and a heat or light-curable polymer resin bonding base molded onto the lingual side of the body such that at least part of the body is embedded in the base, said appliance body and said base having matching grooves defining at least one opening in the appliance for receiving an arm of an auxiliary appliance or a secondary archwire for applying a predetermined force to a tooth on which the appliance is mounted.

19. The orthodontic appliance of Claim 18, wherein the opening extends substantially vertically.

20. The orthodontic appliance of Claim 18, wherein the opening extends substantially horizontally.

21. The orthodontic appliance of Claim 18, wherein the opening extends substantially diagonally.

22. The orthodontic appliance of Claim 18, wherein the polymer resin is acrylic, epoxy or epoxy/acrylic.

23. The orthodontic appliance of Claim 22, wherein the appliance is a bracket or a tube.

24. A method of making an orthodontic appliance including a body of metal, ceramic or plastic having a buccal/labial archwire receiving side and a lingual side, and a polymer resin bonding base molded onto the lingual side of the body such that at least part of the body is embedded in the base, wherein the base is molded to the body with or without one or more openings extending therethrough for receiving an arm of an auxiliary appliance or a secondary archwire, said method comprising the step of:

making an orthodontic appliance body of ceramic, metal, or plastic of one size such that when a bondable polymer resin base is molded to the lingual side of the body, a bondable orthodontic appliance is produced for bonding to a tooth, said body having an archwire receiving side and a lingual side on which the base is molded, and

molding a light-curable or heat-curable polymer resin bonding base to the lingual side of the body such that the lingual side is at least partially embedded in the base, wherein said base is molded with or without at least one or more openings extending therethrough for receiving an anchoring arm of an auxiliary or a secondary archwire for applying a predetermined force to a tooth on which the appliance is mounted.